the absence of morality in them, account for it by saying that their countrymen needed no moral teaching, because they were perfect already, and not depraved like the Chinese and foreign nations generally. The tales of the Ainos, on the other hand, generally point a moral or account for some natural fact. Birds and beasts are the characters; those of the Japanese are generally men, or gods who are the counterparts of men.

The third line of investigation adopted by Mr. Chamberlain is that of place-names in Yezo and in Japan. His first process was to make a catalogue of the names of the principal places in Yezo, with their Japanese corruptions, and the Chinese characters used by the Japanese in writing them. From this he compiles a kind of key, composed of Aino words contained in the names of places in the previous list, and common Aino designations for features of the landscape, such as are likely to occur in the names of places, their meanings, and the Japanese pronunciation. This he applies to the place-names of Japan proper in order to test whether they are of Aino origin. By this ingenious, elaborate, and toilsome method, Prof. Chamberlain examines numbers of Japanese geographical names in various parts of the country, with an amazing profusion of learning. We can do no more here than give the broad results, which are sufficiently clear and striking. He can say with certainty that names, as to the Aino origin of which there can scarcely be a question, may be traced right through the main island of Japan into the two great southern islands. They are fairly abundant even in the extreme southern province. The inference to be drawn from this is that the Ainos were the true predecessors of the Japanese all over the archipelago. "The dawn of history shows them to us living far to the south and west of their present haunts; and ever since then, century by century, we see them retreating eastwards and northwards, as steadily as the American Indian has retreated westwards under the pressure of the colonists from Europe."

It will be observed that Prof. Chamberlain comes to this conclusion, after a comparison of the languages, mythologies, and place-names of the Japanese and the Ainos; it is likewise the conclusion at which Prof Milne arrived a few years ago along a different line of investigation. The latter gentleman compared the kitchen-middens, stone implements, and other prehistoric remains found in numerous parts of Japan with those of undoubted Aino origin—some of the middens being even now in course of construction in Yezo. Prof. Milne's papers on the subject will be found in the Proceedings of the Anthropological Society for 1881, and of the Asiatic Society of Japan (vol. viii. Part 1, and vol. x. Part 2). Hence it may be taken as established sufficiently for all practical purposes that the pre-Japanese inhabitants of the Japanese islands were the Ainos. Beyond this conclusion we are not taken either by Prof. Milne or by Prof. Chamberlain, and with it we must be content until scholars have carried out that series of linguistic comparisons which is "the surest key for unlocking the mysteries of racial affinity and race migrations in this portion of Asia," of which Prof. Chamberlain's work is the beginning.

The last word is very far indeed from being yet said about the Ainos. Meanwhile their numbers are growing smaller decade by decade, their industries are passing into Japanese hands; the animals which were their principal sustenance are rapidly becoming extinct; the survivors of this people almost all speak Japanese as well as their own tongue, and are losing their special characteristics. Hence they "must without delay be subjected to all the necessary scientific tests: their language must be analysed, their folk-lore registered; for soon there will be nothing left." Prof. Chamberlain does not share the regrets of those who mourn over the *Japonisation* and approaching extinction of the Ainos. They have had abundant opportunities of improvement, but they have not profited by them. The son of the greatest living Aino chief is glad to brush the boots of an American family in Sapporo. This is how their latest investigator concludes his interesting and instructive monograph:—"The Aino race is now no more than a 'curio' to the philologist and to the ethnologist. It has no future, because it has no root in the past. The impression left on the mind after a sojourn among the Ainos is that of a profound melancholy. The existence of this race has been as aimless, as fruitless, as is the perpetual dashing of the breakers on the shore of Horobetsu. It leaves behind it nothing save a few names." The whither of the race is unhappily only too certain; its whence still remains a question to perplex the ethnologist, and, if present indications are to be trusted, it will continue an unsolved problem for many years to come. Prof. Chamberlain's monograph carries us just one step back in the life-history of the race; behind that, all is still darkness and doubt.

THE ZOOLOGICAL RESULTS OF THE "CHALLENGER" EXPEDITION.

Report on the Scientific Results of the Voyage of H.M.S. "Challenger" during the Years 1873-76 *under the Command of Capt. G. S. Nares, R.N., F.R.S., and of the late Capt. F. T. Thomson, R.N.* Prepared under the Superintendence of the late Sir C. Wyville Thomson, F.R.S., &c., and now of John Murray, one of the Naturalists of the Expedition. Zoology—Vol. XVII. (Published by Order of Her Majesty's Government, 1886.)

VOLUME XVII. of the Zoological Reports of the voyage of the *Challenger* contains three memoirs. The first is the second and concluding Part of the Report on the Isopoda collected during the Expedition, by Mr. Frank Evers Beddard, of which the first Part was published in 1884, and dealt exclusively with the family of the Serolidæ. The collection of Isopoda made during the voyage was very rich in new species and genera, more particularly in the deep-water forms, of which no less than thirty-eight are described as new. Among the shallow-water species the greater number of novelties were dredged off Kerguelen and the adjacent islands, adding no less than fifteen new species to the previously short list known. In other parts of the world, with the exception of Australia, dredging in shallow water did not yield any considerable number of species of the group. Many of the species described as new were previously briefly diagnosed by the author, in the Proceedings of the Zoological Society of London. Passing from the description of the species of this exceedingly interesting group of Crustacea

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to the summary of their distribution, we find that, while the 300-fathoms line marks approximately the boundary between what may be called the deep-sea and the shallow-water species, yet there is no trace of any zone of depth that has not its Isopod fauna. From 345 fathoms down to 2740 fathoms, species were dredged continuously; there was nowhere a break of more than 100 fathoms. In passing from the lesser to the greater depths, there is evidently a decreasing number of species that are common to these depths and to shallow water; but it is impossible to draw an absolute line of division which would separate an abyssal from a shallow-water fauna. Of the seven species found at a depth of 2000 fathoms and upwards, two range into lesser depths, another (perhaps two) into shallow water, leaving only three distinctly abyssal forms.

One of the most important results of these investigations has been to show that ocean regions cannot be marked out with anything like the same definiteness as can the terrestrial areas. Among the Isopods the same genus, and even the same species, is often to be found in the most widely separated areas: thus, *Eurycope fragilis*, found in the North Pacific, near Japan, ranges as far south as lat. 60° S., close to the Antarctic ice-barrier and to the neighbourhood of the Crozets. It would also seem that the deep-sea Isopods are distributed very unevenly over the floor of the ocean. In long stretches of ocean —occurring, for instance, along the whole of the Central and Southern Atlantic, and the Central and Western Pacific—no species were found; but in drawing conclusions from such negative evidence, the imperfection of the record must be borne in mind. Among the Isopods thirty-four of the deep-sea species were found to be totally blind, and three others, unfortunately only represented by fragments, may in all probability be added to the list. In four more the eyes were evidently degenerate. On the other hand, in eighteen species, there were well-developed eyes. It must not be forgotten that certain shallow-water species are blind. Possibly, the author thinks, the explanation of these anomalies is to be sought for in the length of time that has elapsed since the migration of the different species into the abyssal regions of the ocean. This excellent Report is illustrated by twenty-five plates.

The second memoir in this volume is a Report on the Brachyura, by Mr. Edward J. Miers. We learn from the very modest preface to this really important contribution to the natural history of the brachyurous Crustacea that the groups richest in new genera and species were the Oxyrhyncha (Maioidea) and the Oxystomata (Leucosoidea), and to these belong most of the new forms collected at depths exceeding 100 fathoms. No brachyurous crab was found at a depth exceeding 2000 fathoms and but very few at depths exceeding 500 fathoms. The localities furnishing the greatest proportion of new or interesting forms were the stations at, among, or near the islands of the Malaysian archipelago, and at the Fijis. An atlas of twenty-nine plates accompanies the Report.

The third Report is by the late Mr. George Busk, F.R.S., and is on the Polyzoa, being Part 2, treating of the Cyclostomata, the Ctenostomata, and the Pedicellinea. With this memoir we propose to deal in a separate article.

THE ELEMENTS OF ECONOMICS.

The Elements of Economics. By Henry Dunning Macleod, M.A. Two Vols. (London: Longmans, 1886.)

WE should have been disposed to speak more kindly of this work upon a much troubled subject—a subject, nevertheless, affecting the happiness of the whole of human society—if we had not read in the letter of dedication that the author claimed to offer to his Right Reverend patron "a new inductive science; a new body of phenomena brought under the dominion of mathematics; a new order of variable quantities brought under the theory of variable quantities in general: the great science of analytical economics." Since recently it was an accepted theory among its students that at present there is no "science" of political economy, we were prepared to find a new revolution-working theory of the whole subject, and were surprised to find that the title sufficiently expressed the general contents of the book. The writer goes to the very elements of the science, building up from the beginning in the clearest of language, and illustrating by means of the derivation of words and of many legal phrases and customs, both ancient and modern, English and foreign, "the great science of economics." Mr. Macleod fiercely assails the opinions of Ricardo and other writers, but much of the error he attacks is only apparent. In economic language, there is no such thing, perhaps, as intrinsic value; nor does cost in all cases fix value, as every proprietor of superseded machinery, or of goods gone out of fashion, knows too well; yet it is misleading to teach that the fixing of value by cost may not be accepted as a fair working rule. In the ordinary state of any trade, 95 per cent., say, of the price will be fixed by the cost, and 5 per cent. by the state of the market; and if some such proportions as these are exceeded, increased or decreased production will soon restore them.

Mr. Macleod urges the claims of perpetual copyright, but we cannot see his distinction between property in that and in a patent. If patents are inconvenient for those whom they restrain, copyright is also inconvenient to men wanting cheap literature. An excellent argument to show how much (market) "value" arises from demand is drawn from this commodity: "Writers of the most learned works do not earn the wages of a day-labourer, whereas the writers of trashy and ephemeral novels may earn a fortune."

The practical remarks upon supply and demand and the folly of subsidising a trade so as to increase the supply where it is already too great for the demand (Vol. II. p. 213), and those upon the errors of the Socialists (p. 215), are good; and the old balance-of-trade error is fully exposed. But we do not see the mistake in the quotation from Mill (p. 76): a banker's credit would be small if he had not capital; and surely it is worse than a paradox to say that the policies of an Insurance Company are its capital; as well might the name be given to the money owing for raw material by a manufacturer!

In an attack upon writers of well-known ability, such as we have here, a critic should be careful of his own expressions. On p. 181, Vol. I., in lines 8 and 9 from the bottom, there is a reversal of the important words "debtor" and "creditor," which, though corrected in the next paragraph, adds to the puzzledom of

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